

MEETING MINUTES
LIGNITE RESEARCH COUNCIL
February 17, 1999
Country Suites, Bismarck, ND

MEMBERS (or their authorized alternates) PRESENT:

Gerald Bauman	Coal Conversion Counties Association
Dick Bergstad	I.B.E.W. #714
John Bluemle	North Dakota Geological Survey
Mark Bring	Minnkota Power Cooperative
John Dwyer	Lignite Energy Council
Richard Fockler	Basin Electric Power Cooperative
Bruce Hagen	North Dakota Public Service Commission
Marlowe Johnson	Otter Tail Power Company
Bruce J. Kopp	Northern States Power
Al Lukes	Dakota Gasification Company
Rod Nibbe	Knife River Corporation
Dean Peterson	The North American Coal Corporation
Fritz Schwindt	North Dakota Department of Health
Valdon Swanson	North Dakota Farm Bureau
John Weeda	Great River Energy
Gordon Westerlind	Great River Energy
Bob Wood	MDU Resources Group, Inc.

OTHERS PRESENT:

Lyndon Anderson	Lignite Energy Council
Randy Crooke	The Falkirk Mining Company
Jim Deutsch	North Dakota Public Service Commission
Karlene Fine	Industrial Commission of North Dakota
Vicki Gilmore	Lignite Energy Council
Carmen Miller	North Dakota Attorney General's Office
Jerry Nagel	Nagel Systems
Clifford R. Porter	Lignite Research Council
Duane Steen	Montana-Dakota Utilities Company
Diane Stockdill	Great River Energy (Coal Creek Station)
Fred Stern	Basin Electric Power Cooperative (Leland Olds Station)
Andy Stewart	Cooperative Power

Lignite Research Council (LRC) chairman John Dwyer called the LRC meeting to order on February 17, 1999, at Country Suites, Bismarck, North Dakota. He asked if anyone had additions for the agenda. He said an addition for the agenda under Other Business will be a summary of Legislative issues affecting the lignite research program budget.

Financial Summary

Karlene Fine summarized the financial summary for the 1997-1999 North Dakota Lignite Research, Development and Marketing Program, as stated on pages 2 and 3 of the meeting book.

As of 12/31/98, the balances in the budget were as follows: for administration of the program: \$161,888; for lignite marketing feasibility studies: \$377,700; for small research projects: \$965,433; for demonstration projects: \$9,126, 419. In the administration budget there is a further breakdown for LRC expenses, the R&D Finance Plan, and the technical advisor with a balance of \$161,888 as of 12/31/98. In the lignite marketing feasibility studies area, target funding figures were revised in May. Fine said that figure is \$400,000. \$77,200 of the \$400,000 has been committed. She said there had

been a commitment for a lignite marketing feasibility study contract in the environmental studies area for \$250,000; however, that study (by the University of ND School of Medicine) had to be terminated because the principal investigator was leaving the state. In the small research projects area, \$513,303 has been committed. For demonstration projects, Find said that bond payments for the Dakota Gasification Company ammonia project are listed under 1.A.4.a on page 3 of the meeting book. There is \$1,179,569 in available funding for the demonstration project area.

Approval of Minutes

Dwyer asked for a motion for approval of the minutes of the November 4, 1998 LRC meeting. Bruce Hagen moved that the minutes be approved; seconded by Rich Fockler. Motion carried.

Lignite Research, Development and Marketing Program Updates (Grant Agreements Signed After October 15, 1995)

Dwyer asked if there were questions concerning the updates on pages 9 through 15 of the meeting book, which list synopses of the more recent projects in the three program areas of marketing feasibility studies, small projects, and demonstration projects.

Grant Round XXXIII Grant Applications

Dwyer summarized technical peer reviewers' comments and technical advisor recommendations for funding for the four Grant Round XXXIII proposals.

LRC-XXXIII-A: "Commercial Demonstration of MDU Controlled Density Fill (CDF)"; Submitted by Montana-Dakota Utilities and Western Research Institute; Project Manager: Duane Steen; Request for: \$97,115; Total Project Costs: \$385,375; Time Frame: Two Years.

Dwyer said that Technical Advisor Clifford Porter's recommendation is that the project be funded. Two of the three technical peer reviewers recommended funding; one recommended that funding may be considered. The technical peer reviewers gave the project an average weighted score of 186.7 out of 250 points. The potential conflict-of-interest parties are MDU Resources Group and Knife River Corporation.

Duane Steen thanked the Lignite Research Council for its support of the previous CDF project (FY97-XXVI-73) that received funding from the lignite research fund. Western Research Institute developed a CDF material using ash from the Heskett Station. The current project proposes marketing, product testing, plant operations and product monitoring programs to demonstrate commercial viability of CDF, a construction material. Steen said that the project will use 10% to 15% of the fly ash from the Heskett Station during the first year of the project.

LRC-XXXIII-B: "Investigation of Paste Technology for CCB Disposal and Mine Reclamation"; Submitted by: En-Rock; Principal Investigator: Andrew Stewart; Request for: \$100,000; Total Project Costs: \$400,000; Time Frame: One Year.

Dwyer said the objective of the project is to dispose of coal combustion byproducts as a stable paste. The purpose of paste technology is to convert ash into a stable material that can be placed in the mine pit and thus reduce disposal costs. The five technical peer reviewers gave the project an average weighted score of 180 out of 250 points. Three of the technical peer reviewers said the project should be funded and two recommended funding to be considered. One technical reviewer indicated that if successful, the paste technology will reduce unnecessary regulatory costs. Another reviewer wrote that paste must be evaluated on a site-specific basis. Other reviewers' comments summarized by Dwyer indicated that the paste technology based on this project is likely to be applicable to other situations; a major flaw in the proposal is lack of detail and lack of methodology; and the field monitoring program should be extended. Dwyer said that technical advisor Clifford Porter recommends the project be funded, with the contingency that long-term monitoring should exceed two

years. Conflict-of-interest parties are The North American Coal Corporation and Great River Energy (Cooperative Power and United Power Association).

Andrew Stewart and Diane Stockdill spoke in support of the project. Stewart addressed three areas concerning the project: 1) quantification of the regulatory and disposal cost savings; 2) whether the technology is site-specific to Coal Creek Station; and 3) the monitoring program for field testing.

Stewart said that paste is an engineered coal combustion byproduct and water mixture, much like concrete. Phase I of the project will include pilot-scale field testing, while Phase II will include full-scale design and construction of a plant. Stewart said that for Coal Creek Station, the disposal savings as a result of this project's technology could be \$400,000 to \$800,000 per year. He said the technology is applicable to other plants, especially the mine/mouth plants in North Dakota. Stewart said paste is a viable reclamation tool and could make the lignite industry more competitive.

Stockdill said that coal combustion byproducts are not hazardous wastes and are regulated by the North Dakota solid waste rules. Environmental benefits of paste include the reduction in the need for large open pits, no need to construct disposal facilities, and reclamation can occur in conjunction with disposal.

LRC-XXXIII-C: "Application for a Grant for Partial funding of TRI Variable Speed Fluid Drives for Induced Draft Fans at the Leland Olds Station, Basin Electric Power Cooperative"; Project Manager: Fred Stern; Principal Investigator: Melbourne F. Giberson, Ph.D.; Request for: \$180,000; Total Project Costs: \$384,000; Time Frame: 9 Months.

Dwyer said the project proposes the use of variable speed fluid drive for the induced draft fan as a means to reduce emissions and increase plant efficiency. Induced draft fans vary air pressure within the boiler and the flow of flue gas to air pollution control equipment.

The project's objective is to compare and quantify electric power consumption and combustion gases' concentrations before and after installation of the variable speed fluid drive. Two of the three technical peer reviewers recommended the project be funded and one recommended do not fund. The reviewer who recommended do not fund indicated the project did not meet any of the LRC goals except preservation of jobs.

One of the two reviewers who recommended funding wrote that the project's proposed budget value will likely be exceeded by demonstrating the value of increased efficiencies and reduced emissions. The other reviewer indicated that transfer of the technological information to other plant owners should be a requirement for funding the project. The average weighted score was 175.7 out of 250 points.

Dwyer said that Clifford Porter recommended the project be funded, with the contingency that there is an agreement to provide detailed information/results to other plant owners. Conflict of interest parties are The North American Coal Corporation and Basin Electric Power Cooperative.

Fred Stern spoke in support of the project. Addressing a concern written by one of the technical reviewers, Stern said this technology is not new, but it is the first application of the fluid drive in North Dakota power plants. Potential impacts of the project could include lower operational costs and reduced stack emissions. Lower costs allow lignite to be more competitive. Stern said a complete project report would be provided to the Industrial Commission and area power plants. John Weeda asked how this technology could reduce emissions. Stern said there would be a 1% to 3% reduction in Leland Olds Station service.

LRC-XXXIII-D – Reconsideration of LRC-XXXII-B: “Ash + Mineral Soil + Cement + Compaction = Rammed Earth Abode”; Request for: \$145,490; Total Project Costs: \$315,980; Time Frame: One Year.

Dwyer said this project was originally submitted under Grant Round XXXII and was did not receive a LRC recommendation for funding. Technical Advisor Clifford Porter was requested to work with the project’s applicant to resubmit the project for consideration.

Dwyer said that three of the four members of the LRC Executive Committee who returned ballots concerning their recommendations for funding of the lignite marketing feasibility study titled “Technical Evaluation of Rammed Earth Building Products” recommended the study be funded (\$35,800 for the Energy and Environmental Research Center).

The objective of project LRC-XXXIII-D is to incorporate bottom ash in rammed earth abodes. A goal of the project is to construct a four-plex apartment using the rammed earth material.

Conflict-of-interest parties are The North American Coal Corporation and Great River Energy. Dwyer summarized the information that the technical peer reviewers and the technical advisor indicated were lacking in the project that was submitted for Grant Round XXXII, considered by the LRC at its November 4, 1998 meeting. The technical advisor recommended that the project be reconsidered for funding, with contingencies including funding of a marketing feasibility study, favorable results from that study, adequate construction plans, and a letter of commitment from Great River Energy.

Jerry Nagel spoke in support of the project. He said that the correct term is rammed earth abode, not rammed earth adobe. Nagel said the start of construction of the abode will be in August 1999 at the earliest. He said the rammed earth technology could be used in commercial structures as well as houses, and that EERC indicates that the fly ash could be used in 57,000 houses per year. Bruce Hagen asked if the fly ash used in the rammed earth material would come from all of the power plants in North Dakota. Jerry Nagel said that would be true.

Contingencies for Funding of Grant Round XXXIII Proposals

Prior to the balloting, Dwyer explained the contingencies for projects LRC-XXXIII-B, LRC-XXXIII-C and LRC-XXXIII-D. For project B: The requested funding of \$100,000 is contingent upon long-term monitoring to exceed two years. For project C: The requested funding of \$180,000 is contingent upon agreement to provide detailed information/results to other plant owners. For project D: The Requested funding of \$145,490 is contingent upon compliance with the Technical Advisor’s conditions. Discussing project B, Andrew Stewart said that in his talks with the North Dakota Department of Health and the Public Service Commission, one of the big areas of uncertainty is the time frame.

Stewart said he thought the LRC should not set a time limit, and that the Health Department was not sure if it should be three months, six months or six years.

Randy Crooke said that what the project applicants were envisioning for the pilot study is that the data recovery will drive the term of the pilot study.

Clifford Porter asked Fritz Schwindt and Bruce Hagen to comment about the project B contingency. Schwindt said that he had not been directly involved with the proposers concerning this project, but his initial reaction is to recommend a two years or longer time frame.

Randy Crooke said that the joint decision between the proposers and the agencies is that the time frame for the monitoring would depend on how the leachate study progresses. The study would drive the term of the project.

Clifford Porter suggested that the contingency could be an agreement that could be arrived at in consultation with the PSC and the NDDOH.

Bruce Hagen moved that the contingency on proposal LRC-XXXIII-B will be that the monitoring period be agreed upon by the North Dakota Department of Health, the Public Service Commission and the grant applicant. Seconded by Dean Peterson; motion carried.

Dwyer said that funding for proposal C is contingent upon an agreement by the grant applicant to provide detailed information/results to other plant owners. He asked Fred Stern if that was also his understanding. Stern said that it was acceptable.

Dwyer explained the four contingencies of proposal D: 1) funding of \$35,800 for the Energy and Environmental Research Center's lignite marketing feasibility study titled "Technical Evaluation of Rammed Earth Building Products; 2) Favorable results from that lignite marketing feasibility study, including benefits with the use of lignite byproduct material; 3) Adequate construction plans and a review of the plans by a qualified builder (with the review to be done as a part of the marketing feasibility study); and 4) A letter of commitment from Great River Energy/Coal Creek Station to provide support and materials for the project.

Dwyer said that EERC's lignite marketing feasibility study "Technical Evaluation of Rammed Earth Building Products: received a 3 to 1 favorable recommendation from the four members of the LRC Executive Committee who voted. He added that if the LRC does not vote to fund proposal D, the EERC's lignite marketing feasibility study would not be funded.

Next Lignite Research Council Meeting: Grant Round XXXIV Deadline

Dwyer said the next LRC meeting is scheduled for 1:30 p.m. July 21, 1999 and the next grant round application deadline is May 1, 1999. He said it is possible to schedule another grant round by requesting it from the Industrial Commission.

Legislative Update

While the LRC members completed their ballots, Dwyer gave a Legislative session update about legislation affecting the R&D program. He said the R&D program appropriation in House Bill 1015 passed the House.

Dwyer said there is a study resolution concerning the Industrial Commission and all of its programs (including the R&D program) and another study resolution concerning regulatory and taxation issues related to the lignite industry and impediments to the development of lignite. Dwyer said the Lignite Energy Council is monitoring approximately 150 bills during this Legislative session, including the territorial integrity bill and a bill proposing a tax on imported coal.

Ballot Results

The LRC cast confidential ballots to either concerning whether or not to recommend that the Industrial Commission fund the four Grant Round XXXIII proposals.

The balloting results were as follows:

LRC-XXXIII-A: Fund: 17; Do Not Fund: 0.

LRC-XXIII-B: Fund: 16; Do Not Fund: 0. Abstained from voting: 1.

LRC-XXXIII-C: Fund: 14; Do Not Fund: 3.

LRC-XXXIII-D: Fund: 11; Do Not Fund: 6. Dwyer said the EERC's lignite marketing feasibility study titled "Technical Evaluation of Rammed Earth Building Products" may now proceed.

Adjournment

There being no further business, the meeting was adjourned.

Vicki Gilmore, Recording Secretary
